MARS PATHFINDER LANDING SITE: IMPLICATIONS OF GOLDSTONE RADAR CW AND) RANGING OBSERVATIONS; M. A. Slade and R. F. Jurgens, JPL/Caltech, M/S 238-420, Pasadena, CA911 09-8099

The prime landing site for the Mars Pathfinder Lander/Rover has been chosen to be in Chryse Planitia in smooth terrain that seems likely to have the potential for sampling a variety of material Carried by outflow from the Arcs Valles and, to a lesser extent, from any Tiu Valles outflow. This site, however, was rejected as a Viking lander site clue to Goldstone CW radar echoes with low signal-to-noise.

The 1995 Goldstone radar system is about] 2 dB more sensitive. than the radar system existing at the time of the Viking Lander decisions. Four passes over the Pathfinder prime landing site have been scheduled for January -February 1995. In addition, observations just south of the Viking Lander 1 site have been obtained in December 1994. However, repairs to the Goldstone 70-m azimuth bearing arc being done during the first three weeks in January 1995. Thus we cannot say with certainty that these tracks over the "Arcs" landing site will actually be performed.

If the observations arc successful, both continuous wave (CW) radar and radar topographic profiles will be obtained. The CW observations will yield information on the RMS slopes in the landing site area, and possibly some compositional information derived from the measured radar reflectivity. The same information (in more detail) can be obtained from the. topographic profiles. The topographic profiles in these areas also offer the ability to directly measure the elevation differences, and thus increase the confidence in the aerobraking model. (This is a minor issue since the prime site is well within the desired elevation constraints.)

Radar ranging observations will also improve knowledge of and reduce the uncertainty in the orbital position of Mars. Again, this is not very important for the Pathfinder Mission itself, but may be important for later missions like the Mars Geoscience Observer,

The results obtained will be presented at the meeting.